



हरकोर्ट बटलर प्राविधिक विश्वविद्यालय

नवाबगंज, कानपुर - 208002, उ.प्र., भारत

HARCOURT BUTLER TECHNICAL UNIVERSITY

NAWABGANJ, KANPUR - 208002, U.P., INDIA

(Formerly Harcourt Butler Technological Institute, Kanpur)

Phone : +91-0512-2534001-5, 2533812, website : <http://www.hbtu.ac.in>, Email : vc@hbtu.ac.in

100+ YEARS
1921 - 2021



1.1.2 Number of programmes where syllabus revision was carried out

Session 2023-24			
S. No.	Program Code	Program Name	Year of offering
1	01	B.Tech. (BE)	1964
2	02	B.Tech. (CE)	1966
3	03	B.Tech. (CH)	1954
4	04	B.Tech. (CS)	1984
5	05	B.Tech. (EE)	1965
6	06	B.Tech. (ET)	1990
7	07	B.Tech. (FT)	1964
8	08	B.Tech. (IT)	2000
9	09	B.Tech. (LT)	1978
10	10	B.Tech. (ME)	1964
11	11	B.Tech. (OT)	1921
12	12	B.Tech. (PL)	1964
13	13	B.Tech. (PT)	1964
14	31	MCA	1987
15	01	M.Tech. (BE)	1966
16	06	M.Tech. (CE)	2011
17	02	M.Tech. (CH)	1960
18	05	M.Tech. (ET)	2002
19	07	M.Tech. (FT)	1967
20	04	M.Tech. (ME)	2000
21	14	M.Tech. (PT)	1959 (2021)
22	15	M.Tech. (PL)	1966 (2021)
23	16	M.Tech. (CSE)	2022
24	17	M.Tech. (EE)	2022
25	10	M.Tech. (OT)	1966
26	30	MBA	2021
27	27	M.Sc. (Math)	2021
28	29	M.Sc. (Chemistry)	2021
29	36	BBA	2022
30	01	PhD	2017

(Dr. Lalit Kumar Singh)

Dean of Academic Affairs

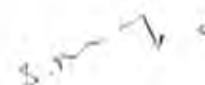
**Minutes of Meeting of the Board of Studies for B.Tech.-Chemical Technology-
Plastic Technology held on June 03, 2023**
Department of Plastic Technology,
School of Chemical Technology,
HBTU, Kanpur

The meeting of Board of Studies for Plastic Technology was held on June, 03, 2023 at 11:30 AM for B.Tech.-Chemical Technology-Plastic Technology in Room no. 1-112 of HBTU Kanpur. Following members were present:

1. Dr. Pradeep Majhi, Associate Professor & Head; Department of Polymer and Process Engineering, IIT Roorkee, Roorkee - 247667 (Uttarakhand) (Expert members)
2. Dr. Syed Javed Ahmed Rizvi, Associate Professor; Department of Petroleum Studies Faculty of Engineering & Technology, Aligarh Muslim University Aligarh- 202 002 (UP) (Expert members)
3. Dr. D. S. Bag, Scientist G; Defence Materials and Stores Research and Development Establishment (DMSRDE) , Kanpur- 208013 (Expert members)
4. Dr. Pradeep Agarwal, Managing Director, Ark Golden India Pvt Ltd; D-31, Kamalanjali, Akota, Off. Old Padra Road; Vadodra – 399 020 (Gujarat) (Expert members)
5. Mr. Krishna Kanta, Vice President; Sperry Plast Limited, Greater Noida 201306 (UP) (Expert members)
6. Dr. Indira Nigam (Prof. & Head, Plastic Tech. Deptt.)
7. Dr. Reena Singhal (Member, B.O.S.)
8. Dr. Deepak Srivastava (Member, B.O.S.)
9. Dr. Soma Banerjee (Member, B.O.S.)

The minutes of the BoS meeting of Plastic Tech Dept. are as follows: The following changes were made in the course structure of the B. Tech. Plastic Technology:

1. HBTU, Kanpur is adopting New Education Policy (NEP) from session 2022-23 and as per the decisions of **Course Structure Committee/ Committee of Implementation of NEP-2022 of HBTU**, the course structure and syllabus have been developed.
2. The Diploma in **Chemical Technology-Plastic Technology** will be awarded after completion of 2nd year B.Tech program.
3. The students of four year B.Tech. program completing courses with additional credits of 20 or more in their respective branch of study will be awarded Degree of **B.Tech. Honours in Chemical Technology-Plastic Technology** The students can opt for additional courses from the list of PEC or from the online platform.
4. The students of four year B.Tech. program completing courses with additional credits of 20 or more in the area other than their branch of study will be awarded Degree of B.Tech with major in their respective branch of study along with Minor degree in the



area of specialization of additional courses. The minor degree offered by Department of Plastic Technology will be in **Plastic Processing Technology**.

Discussion and decision on the Structure of the B.Tech. Programme:

1. The course structure provided by academic section of HBTU was discussed and after deliberations, the first year course structure and syllabi were unanimously adopted. The course structures and syllabi for third semester onwards (from Third to Eight) were discussed at length and thoroughly deliberated upon. The adopted course structure and syllabi are annexed herewith as **Annexure 1**.
2. The total credits of the Degree **B.Tech Chemical Technology-Plastic Technology** will be **180** with I and II semester of 22 credits; III and IV are of 24 credits; V, VI and VII of 22 credits and VIII semester of 20 credits.
3. There are 20 two Engineering Science Course (ESC), two Humanities Courses (HSS); two Basic Science Courses (BSC); 20 Program Core Course (PCC); 5 Program Elective Course (PEC) and 3 Open Elective Course (OEC) (for students of other departments) with Industrial Training, Seminar, Minor Project and Project from III semester to VIII semester.

Discussion and decision on the Modification/improvement in the name of courses offered for B.Tech. Programme:

1. In the III semester the name of subject **Polymer Chemistry** was changed to **Introduction to Polymer Chemistry**. The Subject **Polymerization Engineering-I** was shifted from IV to III semester.
2. In the IV semester the name of subject **Polymer Processing-I** was changed to **Processing of Polymer**. The Subject **Polymerization Engineering-II** was shifted from V to IV semester. A new lab "Polymerization Engineering Lab" has been introduced in this semester.
3. In the Vth semester the name of **Polymer Processing II** has been changed to **Processing of Polymer II** and subject related to mold Design has been shifted from VII to V semester and its name has been changed to Plastic Mold Design and Dies.
4. The subject technology of elastomer has been shifted from VII to VI semester and its name has been changed to **Rubber Technology**. The subject Polymer Composites has been shifted from VII to VI semester. A new lab 'Polymer Characterization Lab has been introduced in this semester.

Discussion and decision on the Revisions/Improvement in the Syllabus of courses offered for B.Tech. Programme:

1. The syllabus of courses to be taught by Chemistry Department, Electrical Department, Electronics Department, Civil Engineering, Computer Science Department, Mechanical Engineering Department, Mathematics Department, Physics Department and Humanities Department where provided after approval from BoS of respective

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departments. However the courses offered by Chemical Engineering Department, were included as per suggestions communicated by HOD ChE and those will be approved in the BoS of Chemical Engineering Department. All the courses of the syllabi of other departments were scrutinized and deliberated upon. Several suggestions have been made by external and internal experts. The entire syllabus is revised by about 20%.

2. Dr D. S. Bag, in **NPL 201 Introduction to Polymer Chemistry (ITPC)**, in the Reference section, Book titled 'Principles of Polymers-An Advanced Book by D.S. Bag, Nova Science Publishers, NY, 2013' has been added as suggested by external expert.
3. Dr D. S. Bag, in **NPL 203 Polymerization Engineering-I (PE-I)**, Module II, in the Types of Catalyst, Zeigler Natta and Metallocene and recent advancement in catalysts have been included.
4. As suggested by Mr. Javed Rizvi, in **NPL 207 Polymer Chemistry Lab (PC Lab)** list of experiments, the expt. no. 1 has been revised as 'determination of refractive index of organic, monomers, solvents, etc. The expt. no. 8 is revised as 'determination of density of given polymer granules'. Mr. Krishna Kanta, various standards e.g. ISO, BIS, ASTM are included.
5. As suggested by Mr. Javed Rizvi, in **NPL 210 Polymerization Engineering Lab (PE Lab)**, in the list of experiments, expt no. 3 has been revised as 'synthesis of unsaturated polyester resin'.
6. As suggested by Mr. Javed Rizvi, in **NPL 301 Processing of Polymers-II (PP-II)**, in Module VI, in the list of experiments, expt no. 1 has been revised as 'Preparation of sample Dumble shape test specimen on semi-automatic injection molding machine'. Expt no. 2 has been revised as 'Preparation of sample Bar/Disk shaped test specimen on hand injection molding machine'. Expt. no. 3 has been removed.
7. As suggested by Mr. Javed Rizvi, in **NPL 303 Plastic Mould Design and Dies (PMDD)**, Module III, in the injection mould design part, Single cavity, two and three plate mould have been included. In Module IV, the typo has been corrected.
8. As suggested by Mr. Javed Rizvi, in **NPL 305 Polymer Rheology and Testing (PRT)**, in Module IV, in Testing of Polymer Properties, BIS, Concept of Global, quality assurance methods have been included. In Module V, additional characterization techniques added.
9. Dr D. S. Bag, in **NPL 308 Polymer Composites (PC)**, Module III, in the section of matrices for Polymer Composites global and local needs of polymer matrices in transportation has been included. Dr D. S. Bag, in Module 4, 'Bag moulding' has been revised as 'Vacuum Bag Moulding'. As suggested by Mr. Javed Rizvi, in the reference section, Text Book 'Mechanics of Composite Materials, second Ed., by Robart Jones and Robert M.

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Johnes has been added.

10. As suggested by Mr. Javed Rizvi, in **NPL 310 Polymer Characterization Lab (PCH Lab)**, in the list of experiments sl. no. 10 has been revised as 'Determination of melt viscosity by melt rheometer'.
11. Mr. Krishna Kanta, in **NPL 402 Plastic Waste Management (PWM)**, Module III, 'Global Policies and Regulation' section has been revised as 'Global environmental and Regulation of WHO, etc. Policies and regulations of Govt. of India. Plastic and environment, Silent features of Plastic waste management (PWM) rules. Waste treatment of various plastic plants, estimation of power requirement and efficiency of size reduction operation of plastic. Extended producer responsibility (EPR) for plastic waste management.
12. As suggested by Mr. Javed Rizvi, in **NPL 405 Plastic Product Technology (PPT)**, Module V of Computer Aided Design, 'Modeling and simulation applications for Plastic product, designing such as PROE, CATIA, CREO, NX, Solid works, Solid Edge, etc.' have been included.
13. As suggested by Mr. Javed Rizvi, in **NPL 411 Polymer Foams (PF)**, Module IV, the word 'Sorbothane' has been revised as 'synthetic viscoelastic urethane polymer'. As suggested by Dr. Pradeep Majhi, in **NPL 411 Polymer Foams (PF)**, Module V, Recent advancements in Polymer Aerogels has been included.
14. As suggested by Dr. Pradeep Majhi, in **NPL 413 High Performance Polymer Materials (HPPM)**, Module I, the properties and application of High performance Polymer composites are included. As suggested by Dr. Pradeep Agarwal, in Module I, the future prospective of High performance polymers has been included.
15. As suggested by Dr. Pradeep Majhi, **NPL 417 Polymer Blends (PB)**, in Module I, examples of different types of polymer blends have been included.

The syllabus has been revised after incorporating the valuable suggestions from the external expert.

Discussion and decision on the Modification/improvement in the New courses offered for B.Tech. Programme:

1. In the IV semester, New Lab courses "**Polymerization Engineering Lab**" and in the VI semester "**Polymer characterization Lab**" has been introduced.
2. In the VII semester, new theory subjects, '**Speciality Polymers**' and '**Characterization of Polymers**' have been offered.

Discussion and decision on the Modification/Improvement in the Programme Elective courses

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offered for B.Tech. Programme:

1. In VII semester **three programme elective has been introduced** to increase the number of electives to 15 and following new subjects are added as PEC (Plastic Packaging, Polymer Adhesives, and Fiber and Film Technology). One subject Polymer Foams and Adhesives has been split into two subjects. The name of Advanced Polymer Materials has been changed to High Performance Polymer Materials. The name of Polymer Blends and Alloys has been changed to Polymer Blends.
2. In VIII semester Programme elective has been introduced and two new courses '**Characterization of Polymers**' and '**Speciality Polymers**' have been introduced. The name of Plastic Packaging and Waste Management has been changed to Plastic Waste Management.
3. A new Open Elective has been introduced '**Testing of Polymers**'. The credit of Project has been increased from 10 to 16.
4. The credit for the **Minor degree** is 20 and the courses for the minor degree are Introduction to Polymer Chemistry, Processing of Polymers-I, Processing of Polymers-II, Plastic Mould design and Dies, Plastic Product technology.

The meeting ended with vote of thanks to all the BoS expert members and invitees. The expert members also gave consent to chairmen of BoS to make minor amendments in syllabus, if necessary.

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Indira
(Dr. Pradeep Majhi)

Expert

joined in online mode
(Pic attached)
Indira
(Dr. Syed Javed Ahmed Rizvi)

Expert

joined in online mode
(Pic attached)
Indira
(Dr. D.S. Bag)

Expert

joined in online mode
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Indira
(Dr. Pradeep Agarwal)

joined in online mode
(Pic attached)
Indira
(Mr. Krishna Kanta)

(Mr. Krishna Kanta)

Expert

Expert

Reena

(Prof. Reena Singhal)

Member

Deepak

(Prof. Deepak Srivastava)

Member

Soma Banerjee

(Dr. Soma Banerjee)

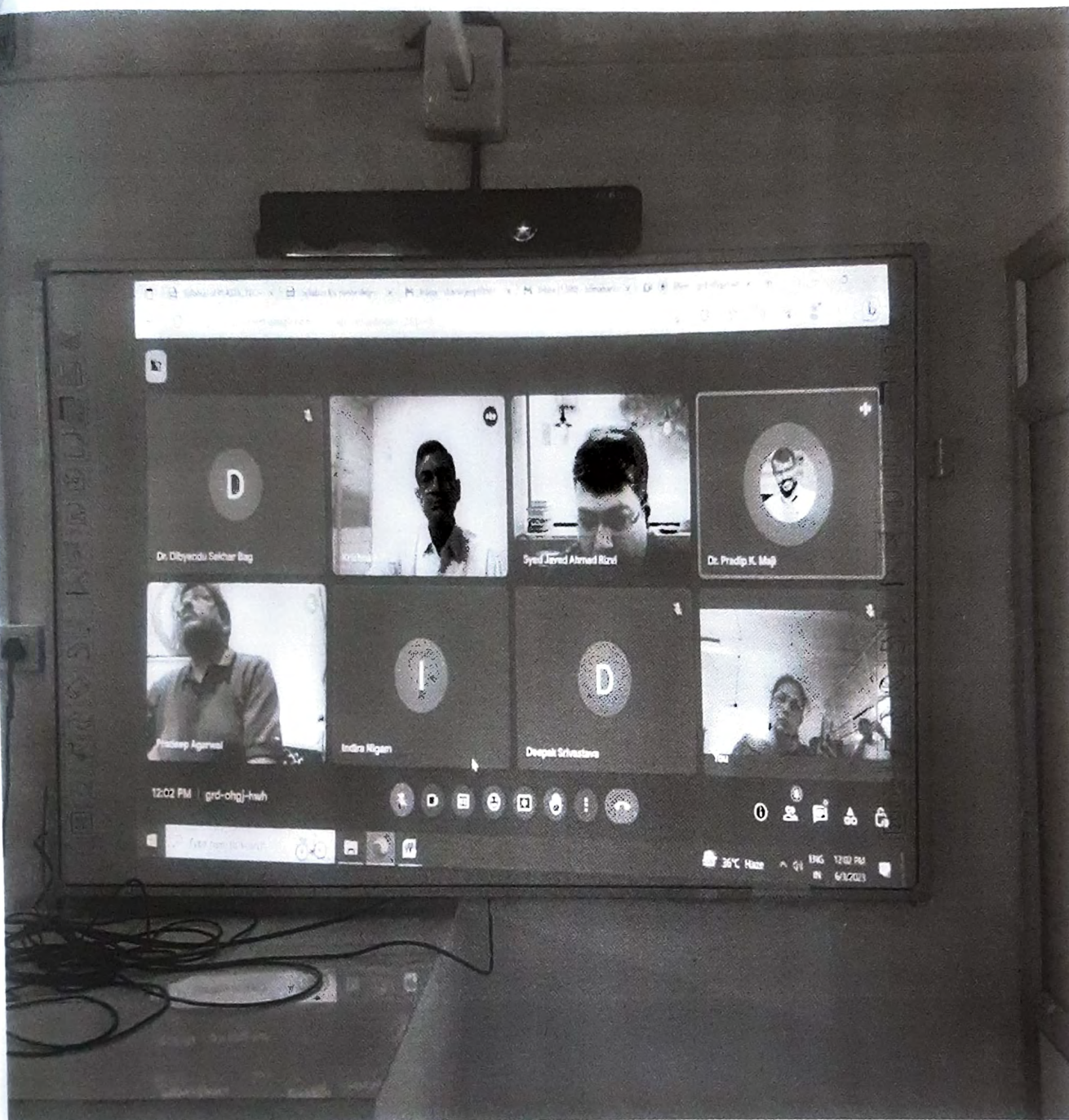
Member

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03/07/2023
(Prof. Indira Nigam)

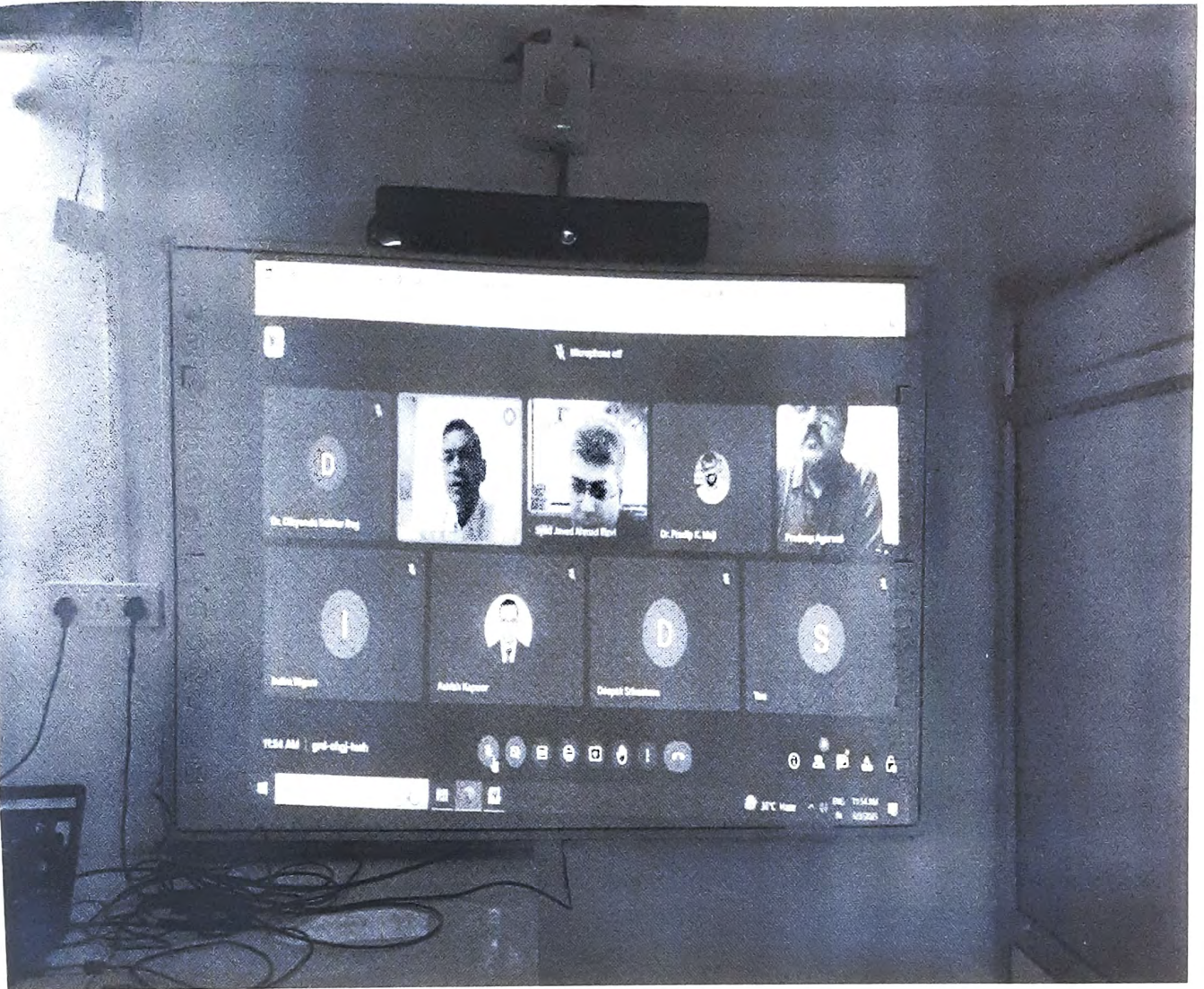
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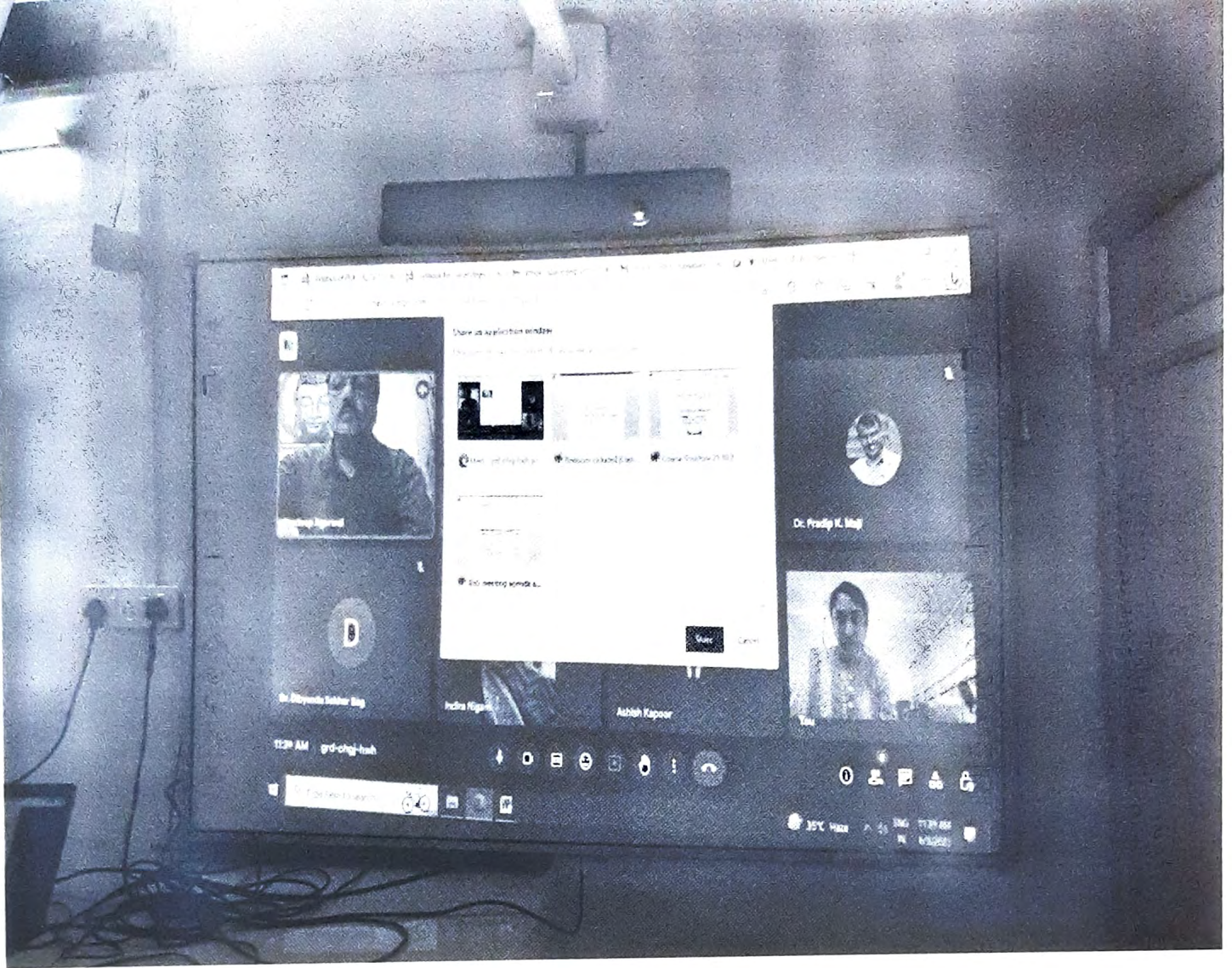
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**Minutes of Meeting of the Board of Studies for M.Tech.-Chemical
Technology-Plastic Technology held on November 17, 2023
Department of Plastic Technology, School of Chemical Technology,
HBTU, Kanpur**

The meeting of Board of Studies for Plastic Technology was held on November 17, 2023 at 3:00 PM for M. Tech.-Chemical Technology-Plastic Technology in Room no. 1-112 of HBTU Kanpur. Following members were present:

1. Dr. Pradeep Majhi, Associate Professor & Head; Department of Polymer and Process Engineering, IIT Roorkee, Roorkee - 247667 (Uttarakhand) (Expert members) *joined online Indira*
2. Dr. Syed Javed Ahmed Rizvi, Associate Professor; Department of Petroleum Studies Faculty of Engineering & Technology, Aligarh Muslim University Aligarh- 202 002 (UP) (Expert members) *joined online Indira*
3. Dr. D.S. Bag, Scientist G; Defence Materials and Stores Research and Development Establishment (DMSRDE) . Kanpur- 208013 (Expert members) *joined online Indira*
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5. Mr. Krishna Kanta, Vice President; Sperry Plast Limited, Greater Noida 201306 (UP) (Expert members) *joined online Indira*
6. Dr. Indira Nigam (Prof. & Head, Plastic Tech. Deptt.) *Indira*
7. Dr. Deepak Srivastava (Member, B.O.S.) *Dr.*
8. Dr. Soma Banerjee (Member, B.O.S.) *Soma*

The minutes of the BoS meeting of Plastic Tech Dept. are as follows: The following changes were made in the course structure of the M. Tech. Plastic Technology:

HBTU, Kanpur has New Education Policy (NEP) from session 2022-23 and as per the decisions of **Course Structure Committee/ Committee of Implementation of NEP-2022 of HBTU**, the course structure and syllabus have been developed to be implemented from session 2023-24.

Discussion and decision on the Structure of the M. Tech. Programme:

1. The total credits of the Degree **M. Tech. Chemical Technology-Plastic Technology** is **64** with all the four semester carrying 16 credits each.
2. There are 9 Program Core Course (PCC); 4 Program Elective Course (PEC) and 1 Open Elective Course (OEC) with Seminar and Projects in III and IV semester.

Discussion and decision on the Revisions/Improvement in the Syllabus of courses offered for M. Tech. Programme:

1. The syllabus of the courses offered by Chemical Engineering Department, were included as per suggestions communicated by HOD ChE as approved in the BoS of Chemical Engineering Department. Several suggestions have been made by external and internal

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experts. The entire syllabus is revised by about 20%.

2. As suggested by Dr. Pradeep Majhi, in **NPL 502 Advanced Polymerization Engineering** 'Manufacturing Technologies of Commodity Plastics, Engineering Plastics, Thermosets, Speciality Plastics' have been included in Module II-V.
3. As suggested by Mr. Krishna Kanta, in Unit I of **NPL 505 Advanced Polymer Processing**, a new section on '*Screw Design and Mixing*' has been introduced in the Extrusion Technology Section. Again, in Module II of Injection molding Process, a new section on '*Specifications for injection molding machine*' has been included as suggested by the expert.
4. As suggested by Dr. Syed Javed Ahmed Rizvi, in **NPL 509 Advanced Polymer Composites** the Module I has been marked as 'Introduction to Composites'. In Module IV a new section on Failure Analysis has been added as suggested. Again, in the Application section of Module V, the Application of Polymer Nanocomposites in Advanced areas has also been added. As suggested, a new reference 'Mechanics of composite materials by R.M. Jones' has also been added in the list of Books.
5. As suggested by Dr. Syed Javed Ahmed Rizvi, in **NPL 512 Structure-Property Relationship in Polymers**, a new section on 'Effect of structural features on mechanical, thermal, electrical properties of polymers' has been added.
6. As suggested by Dr. Syed Javed Ahmed Rizvi, in **NPL 517 Polymer Rheology** a new section on '*Mechanical response to Dynamic Load*' has been added in Module II. In Module IV, another new section on 'Measurements of Rheological properties by Rheometers' has been added.
7. As suggested by Dr. Syed Javed Ahmed Rizvi, the course titles for Dissertation/Project subject has been updated as Dissertation/Project I and Dissertation/Project II for III and IV Semester, respectively.

The syllabus has been revised after incorporating the valuable suggestions from the external expert.

Discussion and decision on the Modification/improvement in the New courses offered for M.Tech. Programme:

A new Open Elective Course **OPL 601: 'Advanced Polymer Materials'** has been introduced for the M. Tech. students of other departments in the III Semester.

Discussion and decision on the Modification/Improvement in the Programme Elective courses offered for M. Tech. Programme:

1. The total no. of Programs Electives has been increased. In Semester I, one PEC is offered from the Department of Chemical Engineering and one from PL department for Stream A and Steam B.

2. In Semester II, three PEC NPL 508, NPL 510, and NPL 512 have been offered and the number of elective courses has been increased from two to three in this semester.

The meeting ended with vote of thanks to all the BOS expert members and invitees. The expert members also gave consent to chairmen of BOS to make minor amendments in syllabus, if necessary.

(Dr. Pradeep Majhi)

Expert

(Dr. Syed Javed Ahmed Rizvi)

Expert

(Dr. D.S. Bag)


Expert

(Dr. Pradeep Agarwal)


Expert

(Mr. Krishna Kanta)

Expert


(Prof. Deepak Srivastava)

Member


(Dr. Soma Banerjee)

Member


(Prof. Indira Nigam)

Chairman

Ref. No.:
Date: 17.11.2023

**Minutes of Meeting of the Board of Studies for M.Tech.-Chemical
Technology-Plastic Technology held on November 17, 2023**
**Department of Plastic Technology, School of Chemical Technology, HBTU,
Kanpur**

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Discussion and decision on the Structure of the M. Tech. Programme:

1. The total credits of the Degree **M. Tech. Chemical Technology-Plastic Technology** is **64** with all the four semester carrying 16 credits each.
2. There are 9 Program Core Course (PCC); 4 Program Elective Course (PEC) and 1 Open Elective Course (OEC) with Seminar and Projects in III and IV semester.


(D. S. J. Singh)

Discussion and decision on the Revisions/Improvement in the Syllabus of courses offered for M. Tech. Programme:

1. The syllabus of the courses offered by Chemical Engineering Department, were included as per suggestions communicated by HOD ChE as approved in the BoS of Chemical Engineering Department. Several suggestions have been made by external and internal experts. The entire syllabus is revised by about 20%.
2. As suggested by Dr. Pradeep Majhi, in **NPL 502 Advanced Polymerization Engineering** 'Manufacturing Technologies of Commodity Plastics, Engineering Plastics, Thermosets, Speciality Plastics' have been included in Module II-V.
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Discussion and decision on the Modification/improvement in the New courses offered for M.Tech. Programme:

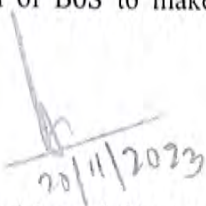
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(Dr. S. J. A. Rizvi)

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20/11/2023

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Expert

(Dr. Syed Javed Ahmed Rizvi)

Expert

(Dr. D.S. Bag)

Expert

(Dr. Pradeep Agarwal)

Expert

(Mr. Krishna Kanta)

Expert

(Prof. Deepak Srivastava)

Member

(Dr. Soma Banerjee)

Member

(Prof. Indira Nigam)

Chairman

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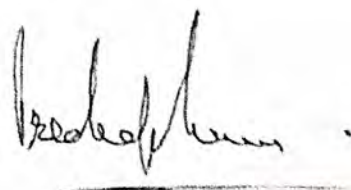
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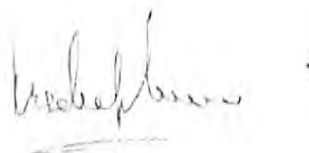
Discussion and decision on the Revisions/Improvement in the Syllabus of courses offered for M. Tech. Programme:

1. The syllabus of the courses offered by Chemical Engineering Department, were included as per suggestions communicated by HOD ChE as approved in the BoS of Chemical Engineering Department. Several suggestions have been made by external and internal experts. The entire syllabus is revised by about 20%.
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3. As suggested by Mr. Krishna Kanta, in Unit I of **NPL 505 Advanced Polymer Processing**, a new section on 'Screw Design and Mixing' has been introduced in the Extrusion Technology Section. Again, in Module II of Injection molding Process, a new section on 'Specifications for injection molding machine' has been included as suggested by the expert.
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The syllabus has been revised after incorporating the valuable suggestions from the external expert.

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A new Open Elective Course **OPL 601: 'Advanced Polymer Materials'** has been introduced for the M. Tech. students of other departments in the III Semester.



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1. The total no. of Programs Electives has been increased. In Semester I, one PEC is offered from the Department of Chemical Engineering and one from PI. department for Stream A and Stream B.
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The meeting ended with vote of thanks to all the BoS expert members and invitees. The expert members also gave consent to chairmen of BoS to make minor amendments in syllabus, if necessary.

(Dr. Pradeep Majhi)

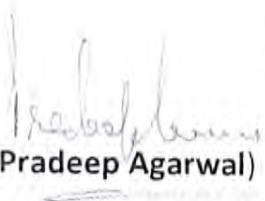
Expert

(Dr. Syed Javed Ahmed Rizvi)

Expert

(Dr. D.S. Bag)

Expert


(Dr. Pradeep Agarwal)

Expert

(Mr. Krishna Kanta)

Expert

(Prof. Deepak Srivastava)

Member

(Dr. Soma Banerjee)

Member

(Prof. Indira Nigam)

Chairman

Ref. No.:

Date: 17.11.2023

**Minutes of Meeting of the Board of Studies for M.Tech.-Chemical
Technology-Plastic Technology held on November 17, 2023**
Department of Plastic Technology, School of Chemical Technology, HBTU,
Kanpur

The meeting of Board of Studies for Plastic Technology was held on November 17, 2023 at 3:00 PM for M. Tech.-Chemical Technology-Plastic Technology in Room no. 1-112 of HBTU Kanpur. Following members were present:

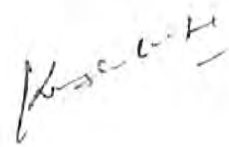
1. Dr. Pradeep Majhi, Associate Professor & Head; Department of Polymer and Process Engineering, IIT Roorkee, Roorkee - 247667 (Uttarakhand) (Expert members)
2. Dr. Syed Javed Ahmed Rizvi, Associate Professor; Department of Petroleum Studies Faculty of Engineering & Technology, Aligarh Muslim University Aligarh- 202 002 (UP) (Expert members)
3. Dr. D.S. Bag, Scientist G; Defence Materials and Stores Research and Development Establishment (DMSRDE) , Kanpur- 208013 (Expert members)
4. Dr. Pradeep Agarwal, Managing Director, Ark Golden India Pvt Ltd; D-31, Kamalanjali, Akota, Off. Old Padra Road; Vadodra - 399 020 (Gujarat) (Expert members)
5. Mr. Krishna Kanta, Vice President; Sperry Plast Limited, Greater Noida 201306 (UP) (Expert members)
6. Dr. Indira Nigam (Prof. & Head, Plastic Tech. Deptt.)
7. Dr. Deepak Srivastava (Member, B.O.S.)
8. Dr. Soma Banerjee (Member, B.O.S.)

The minutes of the BoS meeting of Plastic Tech Dept. are as follows: The following changes were made in the course structure of the M. Tech. Plastic Technology:

HBTU, Kanpur has New Education Policy (NEP) from session 2022-23 and as per the decisions of **Course Structure Committee/ Committee of Implementation of NEP-2022 of HBTU**, the course structure and syllabus have been developed to be implemented from session 2023-24.

Discussion and decision on the Structure of the M. Tech. Programme:

1. The total credits of the Degree **M. Tech. Chemical Technology-Plastic Technology** is **64** with all the four semester carrying 16 credits each.
2. There are 9 Program Core Course (PCC); 4 Program Elective Course (PEC) and 1 Open Elective Course (OEC) with Seminar and Projects in III and IV semester.



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1. The syllabus of the courses offered by Chemical Engineering Department, were included as per suggestions communicated by HOD ChE as approved in the BoS of Chemical Engineering Department. Several suggestions have been made by external and internal experts. The entire syllabus is revised by about 20%.
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The meeting ended with vote of thanks to all the BoS expert members and invitees. The expert members also gave consent to chairmen of BoS to make minor amendments in syllabus, if necessary.

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(Dr. Syed Javed Ahmed Rizvi)

Expert

(Dr. D.S. Bag)

Expert

(Dr. Pradeep Agarwal)

Expert

(Mr. Krishna Kanta)

Expert

(Prof. Deepak Srivastava)

Member

(Dr. Soma Banerjee)

Member

(Prof. Indira Nigam)

Chairman

Ref. No.:

Date: 17.11.2023

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Technology-Plastic Technology held on November 17, 2023**
**Department of Plastic Technology, School of Chemical Technology, HBTU,
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Pradeep Majhi *Kanta*

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Expert

(Dr. Syed Javed Ahmed Rizvi)

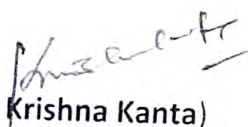
Expert

(Dr. D.S. Bag)

Expert

(Dr. Pradeep Agarwal)

Expert


(Mr. Krishna Kanta)

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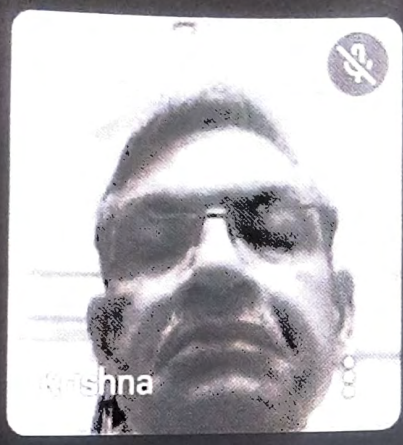
Member

(Dr. Soma Banerjee)

Member

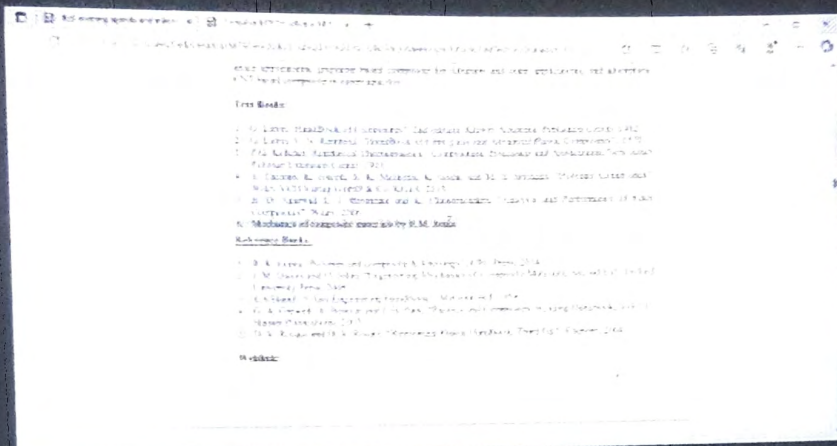
(Prof. Indira Nigam)

Chairman

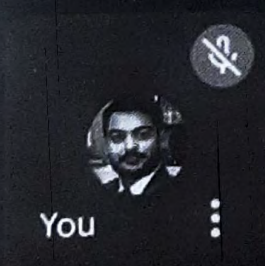


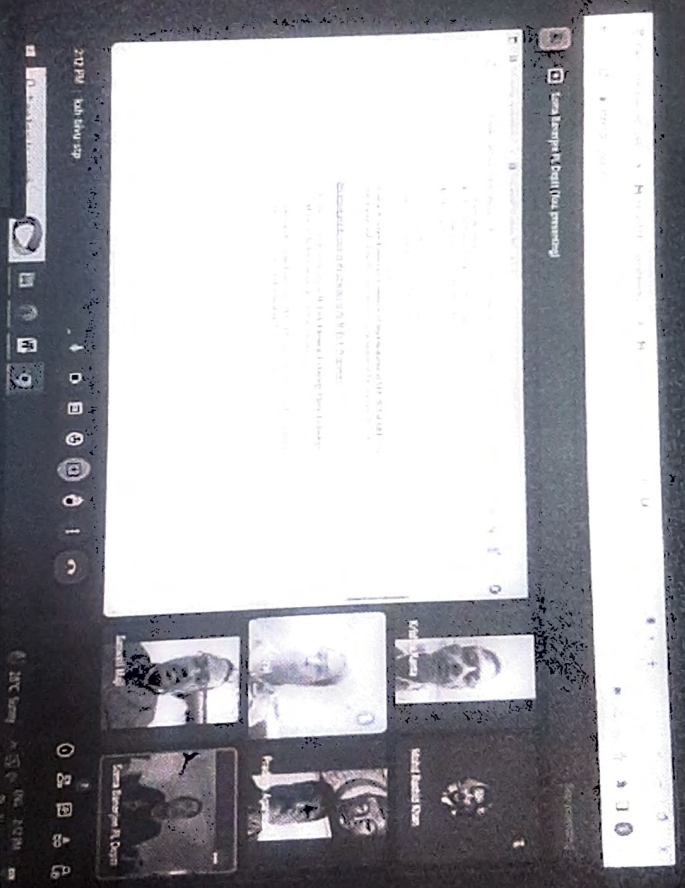


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Soma Banerjee is presenting





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Kanpur, Uttar Pradesh, India
F8V4+CJG, HBIT East Campus, Nawabganj, Kanpur,
Uttar Pradesh 208002, India
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Minutes of the Meeting of Board of Studies
B. Tech & M.Tech. Chemical Technology (Biochemical Engineering) held on July 07, 2023
Department of Biochemical Engineering
School of Chemical Technology
HBTU, Kanpur

A meeting of the BoS members was held on July 07, 2023 at 11:00 AM for B. Tech & M.Tech. Chemical Technology (Biochemical Engineering) to review the course structure and detailed syllabus as per NEP 2020.

The following members were present during the meeting:

1	Dr. Lalit Kumar Singh, Head Biochemical Engineering Department	Chairman
2	Prof. A. S. Vidyarthi, Hon'ble Vice Chancellor, Bikaner Technical University	Member
3	Professor. Aradhana Srivastava, University School of chemical Technology, Guru Govind Singh Indraprastha University	Member
4	Prof. Dhananjay Singh, Head, Chemical Engineering Department, Institute of Engineering and Technology Lucknow	Member
5	Mr. S.K. Singh, Director , Pollucon Technologies Ltd. Noida	Member
6	Mr. Brajesh Singh Asso. Professor, Biochemical Engineering Department	Member
7	Dr. Rajkamal Kushwaha, Asstt. Professor, Biochemical Engineering Department	Member
8	Ms. Roma Agrahari, Assistant Professor, Biochemical Engineering Department	Member
9	Dr. Shravan Kumar, Assistant Professor, Biochemical Engineering Department	Member
10	Mr. Pravin Kumar Sachan, Guest Faculty, Biochemical Engineering Department	Member
11	Mr. Shashikant , Guest Faculty, Biochemical Engineering Department	Member
12	Mr. Mohit Kumar Yadav, Guest Faculty, Biochemical Engineering Department	Member

Following member could not attend the meeting:-

1. Dr. Mukul Bajpai, Associate Director Manufacturing Sc & Tech. Teva API India Pvt Ltd
2. Dr. Dilip Kumar, Guest Faculty Biochemical Engineering Deptt., HBTU Kanpur

Chairman BoS, Dr. Lalit Kumar Singh, welcomed all the members. Following agenda was taken up for discussion and decision.

1. Discussions and decisions on structure and syllabus of the subjects of B.Tech. Chemical Technology (Biochemical Engineering)

The course structure of B.Tech. programme provided by academic section of HBTU discussed and following suggestions were given by the expert members:

- a. Prof. A. S. Vidyarthi suggested for the incorporation of few courses in the domain of Intellectual Property Rights, Entrepreneurships, Sustainability and Green energy.
- b. Prof. Aradhana Srivastava, also stressed on the inclusion of courses focused on Green Energy and Sustainability. Apart from this, it was suggested that Courses like Biochemistry and Microbiology should be taught as a package in second year, Bioinformatics in third year and Protein Science and Engineering in the final year of B.Tech.
- c. Prof. Dhananjay Singh, sought the clarification regarding the course code of subjects offered by Chemical Engineering Department.
- d. Mr. S.K. Singh, emphasized on the inclusion on courses more focused on the Design, Manufacturing, Fabrication along with the strengthening of laboratory courses.

The course structure and syllabi of B.Tech. Chemical Technology (Biochemical Engineering) prepared as per the guidelines provided by the University considering NEP-2020 and was unanimously approved and adopted after incorporating the inputs/suggestions given by the experts. Due weightage was given to suggestions / feedback received from all the stakeholders. New courses included in the syllabus under **(i) PCC:** Fundamental of Life Processes (NBE-201), Industrial Microbiology (NBE-203), Microbial Techniques Lab (NBE-207), Biomolecules in Pharmaceutical (NBE-306), Fermentation & Environmental Lab (NBE-310); **(ii) PEC:** Green Energy and Sustainability (NBE-405), Membrane Application in Bioprocesses (NBE-411), Biosensors (NBE-415), Nanobiotechnology (NBE-417), Biochemical calculations and Plant Design (NBE-402), Protein Science & Engineering (NBE-406) and **(iii) OEC:** Microbial Technology (OBE-302), Fundamentals of Enzyme Engineering (OBE-401), Bioresource Technology (OBE-402)

The members authorized Chairman, BoS to approve the courses and their contents in future if required. The adopted course structure and syllabi are annexed herewith as Annexure I.

2. Discussions and decisions on structure and syllabus of the subjects of M.Tech. Chemical Technology with specialization in Biochemical Engineering)

The course structure of M.Tech. programme provided by academic section of HBTU was discussed and after through deliberations, the course structure and syllabi of M.Tech. Chemical Technology with specialization in Biochemical Engineering was prepared as per the guidelines provided by the University considering NEP-2020 and was unanimously approved and adopted after incorporating the inputs/suggestions given by the experts. Due weightage was given to suggestions / feedback received from all the stakeholders. New courses included in the syllabus

under **(i) PCC:** Structural Molecular Biology/Advanced Molecular Biology (NBE-503/NBE-511); **(ii) PEC:** Nanobiotechnology (NBE-605), Advanced Bioseparation Processes (NBE-601).

The members authorized Chairman, BoS to approve the courses and their contents in future if required. The adopted course structure and syllabi are annexed herewith as Annexure II.

3. Minor courses for other than the Biochemical Engineering students (20 credits)

As per the guidelines of the University regarding Minor degree in Biochemical Engineering for the students of other departments, a basket of 10 courses are approved and listed in Annexure III.

4. Department is also proposing 06 new Value-Added courses as per the guidelines of the University. These are non-credit courses of 30 hours duration. After successful completion of the course, student will get a certificate. The value-added courses are listed as Annexure IV.

5. Any other matter with permission of chair

There being no other matter, Chairman BoS thanked all members and invitees for their important and useful inputs in improving the course structure and syllabus of B.Tech. Chemical Technology (Biochemical Engineering) and M.Tech. Chemical Technology with specialization in Biochemical Engineering).